DIO-3232

Digital I/O Card

User's Manual (V1.5)

健昇科技股份有限公司

JS AUTOMATION CORP.

台北縣汐止市中興路 100 號 6 樓

6F,No.100,Chungshin Rd.

Shitsu, Taipei, Taiwan, R.O.C.

TEL：886-2-2647-6936

FAX：886-2-2647-6940

http://www.automation.com.tw

E-mail：control.cards@automation.com.tw

Correction record

Version	Record

Contents

Notes on hardware installation

Please follow step by step as you are installing the control cards.

1. Be sure your system is power off.
2. Be sure your external power supply for the wiring board is power off.
3. Plug your control card in slot, and make sure the golden fingers are put in right contacts.
4. Fasten the screw to fix the card.
5. Connect the cable between the card and wiring board.
6. Connect the external power supply for the wiring board.
7. Recheck everything is OK before system power on.
8. External power on.

Congratulation! You have it.

For more detail of step by step installation guide, please refer the file “installation.pdf “ on the CD come with the product or register as a member of our user’s club at:
http://automation.com.tw/
to download the complementary documents.

1. Forward

Thank you for your selection of JAC's product DIO-3232 32 inputs and 32 outputs DIGITAL I/O card for IBM compatible industrial PC. In the field of industrial control, digital I/O is generally controlled under a microprocessor and owing to their specific consideration of industrial environment, it is quite different from the laboratory requirement.

This card is a FPGA based design and our experience in the noise immunity makes this card very stable in the noisy environment and you don't worry about computer down by external noise. we wish the card that will be helpful to your project.

Other DIO series products:

DIO-9201 16 channel input and 16 channel output isolated digital I/O card (ISA bus)
DIO-2232 32 channel input and 32 channel output isolated digital I/O card (ISA bus)
DIO-2248 48 channel input and 16 channel output isolated digital I/O card (ISA bus)
DIO-2264 64 channel input isolated digital I/O card (ISA bus)
DIO-3206 48 channel TTL digital I/O Card (PCI bus)
DIO-3208B 8 channel input and 8 channel relay output isolated digital I/O card (PCI bus)
DIO-3216B 16 channel input and 16 channel output isolated digital I/O card (PCI bus)
DIO-3217 16 channel input and 16 channel output isolated digital I/O card (PCI bus) with multifunction timer/counter
DIO-3248 48 channel input and 16 channel output isolated digital I/O card (PCI bus)
DIO-3264 64 channel input isolated digital I/O card (PCI bus)
DIO-4264 64 TTL digital I/O PC-104 Module
DIO-6208 8 channel input and 8 channel relay output isolated digital I/O PCI-104 Module
DIO-6216 16 channel input and 16 channel relay output isolated digital I/O PCI-104 Module

Any comment is welcome,
please visit our website: www.automation.com.tw for the up to date information.

2. Features

2.1 PCI plug and play function with card ID for 16 identical cards
2.2 All of inputs and outputs are photo-coupler isolated
2.3 Build-in input de-bounce circuit
2.4 Accept external interrupt at IN0, IN1
2.5 LEDs for corresponding status indication
2.6 8 digits per I/O group with Green LED at first digit
2.7 Power MOS type output for high speed DC load

3. Specifications

3.1 DIO-3232 Main card

3.1.1 Input photo-coupler isolation voltage — 2500Vac 1Min

3.1.2 Insulation resistance — 100M Ohm (min) at 1000Vdc

3.1.3 PCI bus data width — 32 bits

3.1.4 Card ID — 4 bits

3.1.5 Switching speed — 2.2KHZ max. (with on board debounce circuit)

3.1.6 Input “ON” state — 2.8V(max) 4.5ma(min)

3.1.7 Input “OFF” state — 8V(min) 3ma(max)

3.1.8 Output channel — 32 ea of ON/OFF switching

3.1.9 I/O connector — 68 pin female mini scsi connector

3.1.10 Wiring board — 1 with round cable hook to main card

3.1.11 External supply — DC 24±4V

3.1.12 Operation temperature — 0 to 70° C

3.1.13 Operation humidity — RH5~95%, non-condensed

3.1.14 Dimension — 177(W) * 122(H)mm , 6.97(W) * 4.8(H)in

3.2 DIO-3232DIN Din rail mounted wiring board

3.2.1 External supply —DC 24V±4V

3.2.2 Input status indicator — 32 LED, 8 digit per group with Green LED at first digit

3.2.3 Output status indicator — 32 LED, 8 digit per group with Green LED at first digit

3.2.4 Power indicator — Red LED

3.2.5 Terminal — every 4 has one common terminal.
(Different “common” for different positive power terminal)

3.2.6 Output capacity — POWER MOS output, 1A continuous、120V DC (N MOS max) 、 24V DC (P MOS max) ；Relay output, 3A continuous、250V AC(max)

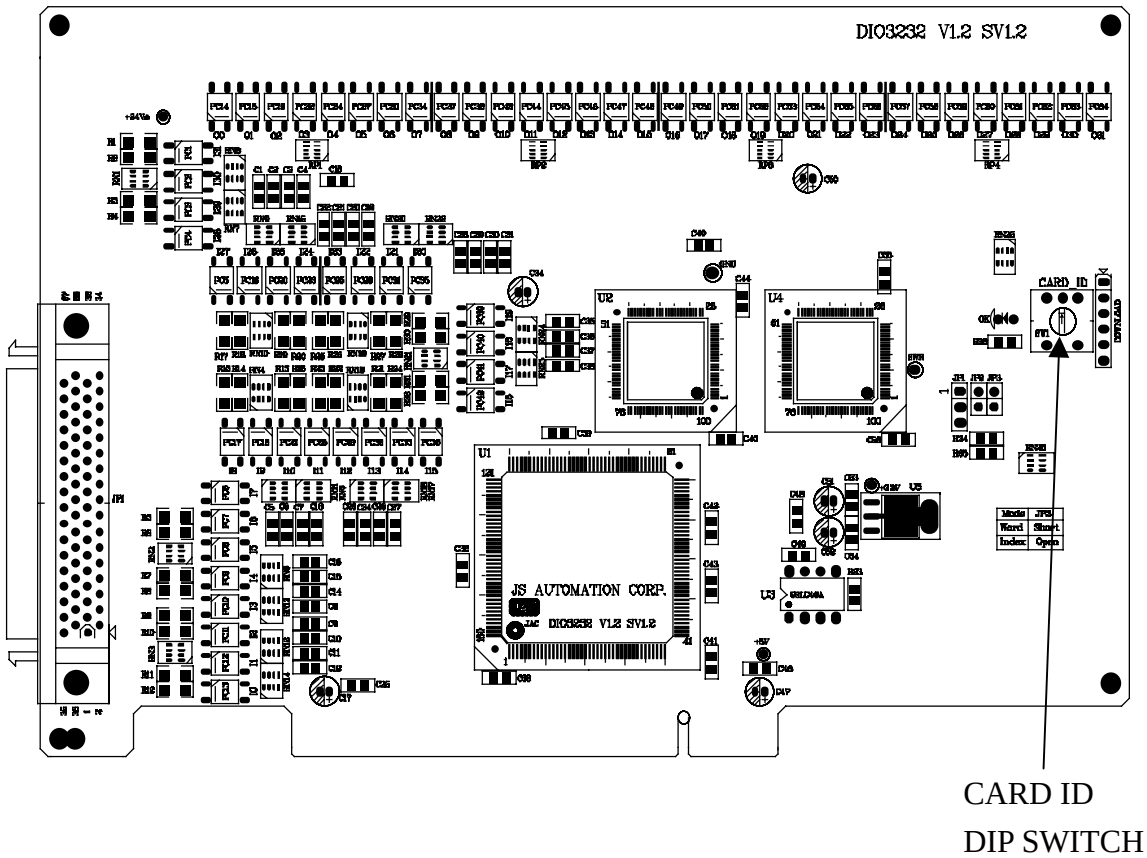
3.2.7 Operation temperature — 0 to 70° C

3.2.8 Operation humidity — RH5~95%, non-condensed

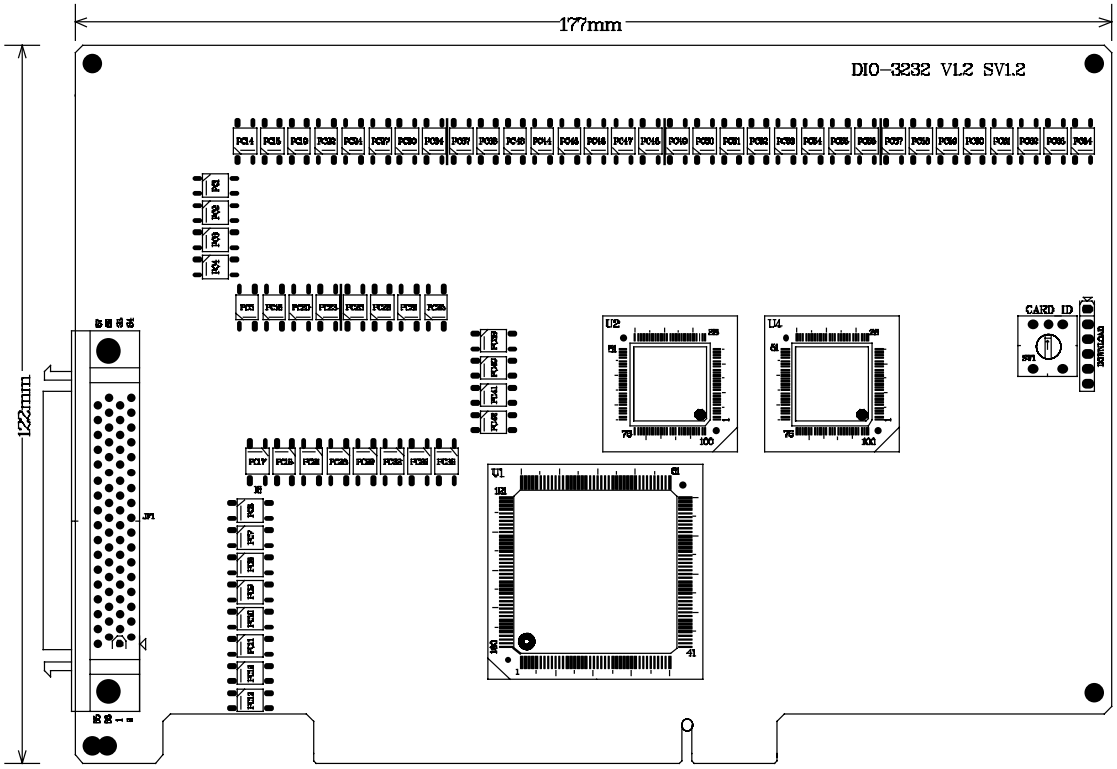
3.2.9 Dimension — DIO-3232DIN(N) : 121(W) * 159(L) * 47(H)mm
4.76(W)*6.26(L)*1.85(H)in
DIO-3232DIN(R) / (P) : 121(W) * 159(L) * 45(H)mm
4.76(W)*6.26(L)*1.77(H)in

4. Layout and dimensions

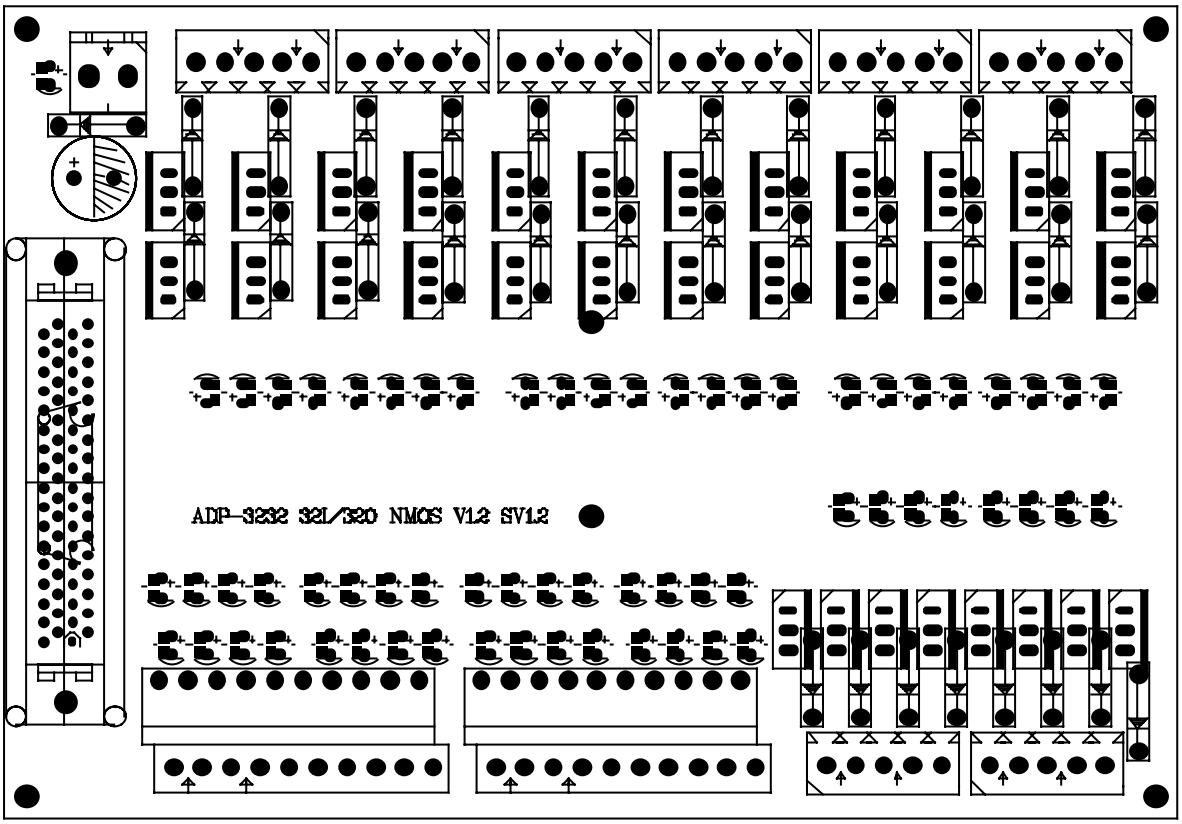
4.1 DIO-3232 Main card layout



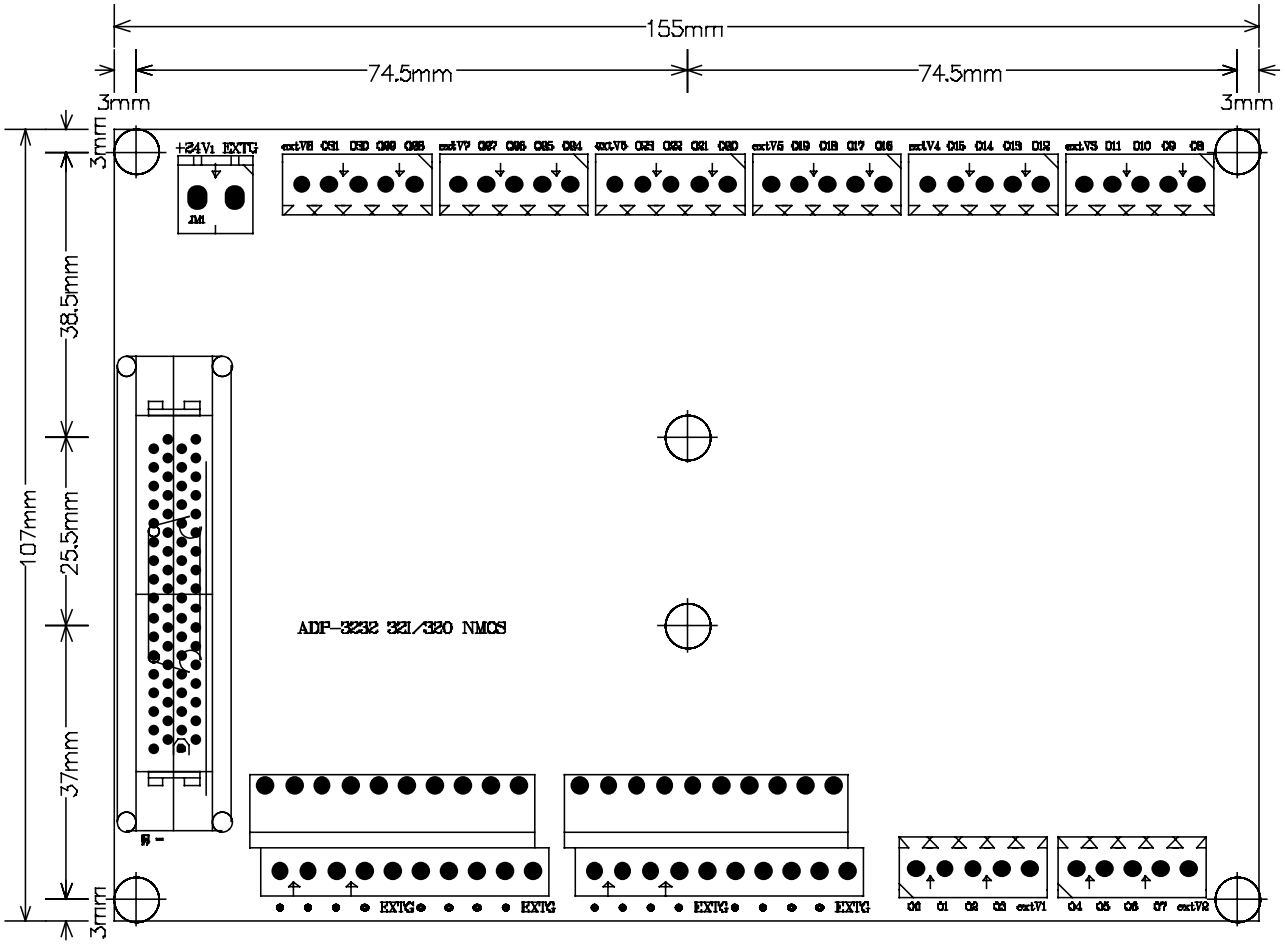
4.2 DIO-3232 Main card dimension



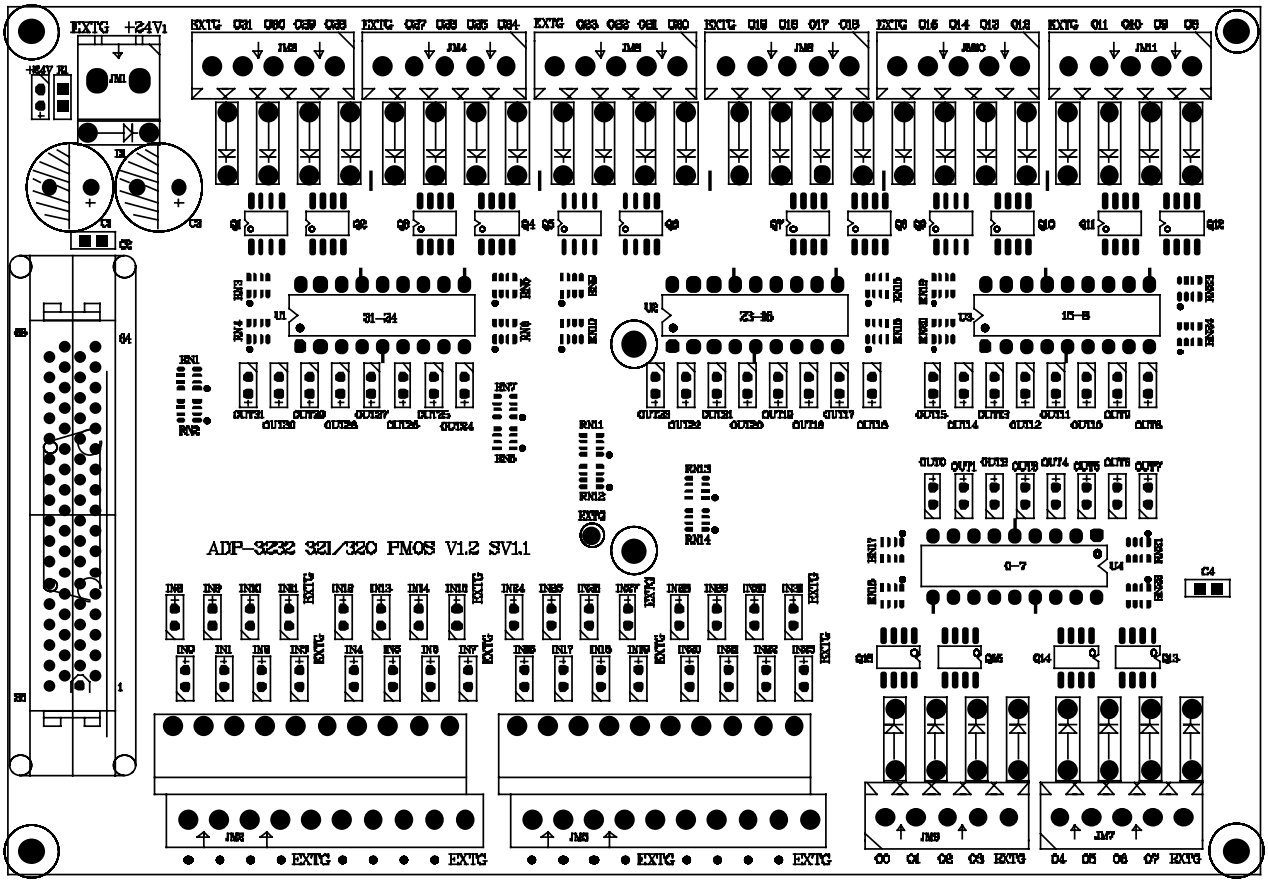
4.3 DIO-3232DIN(N) Din rail mounted wiring board layout



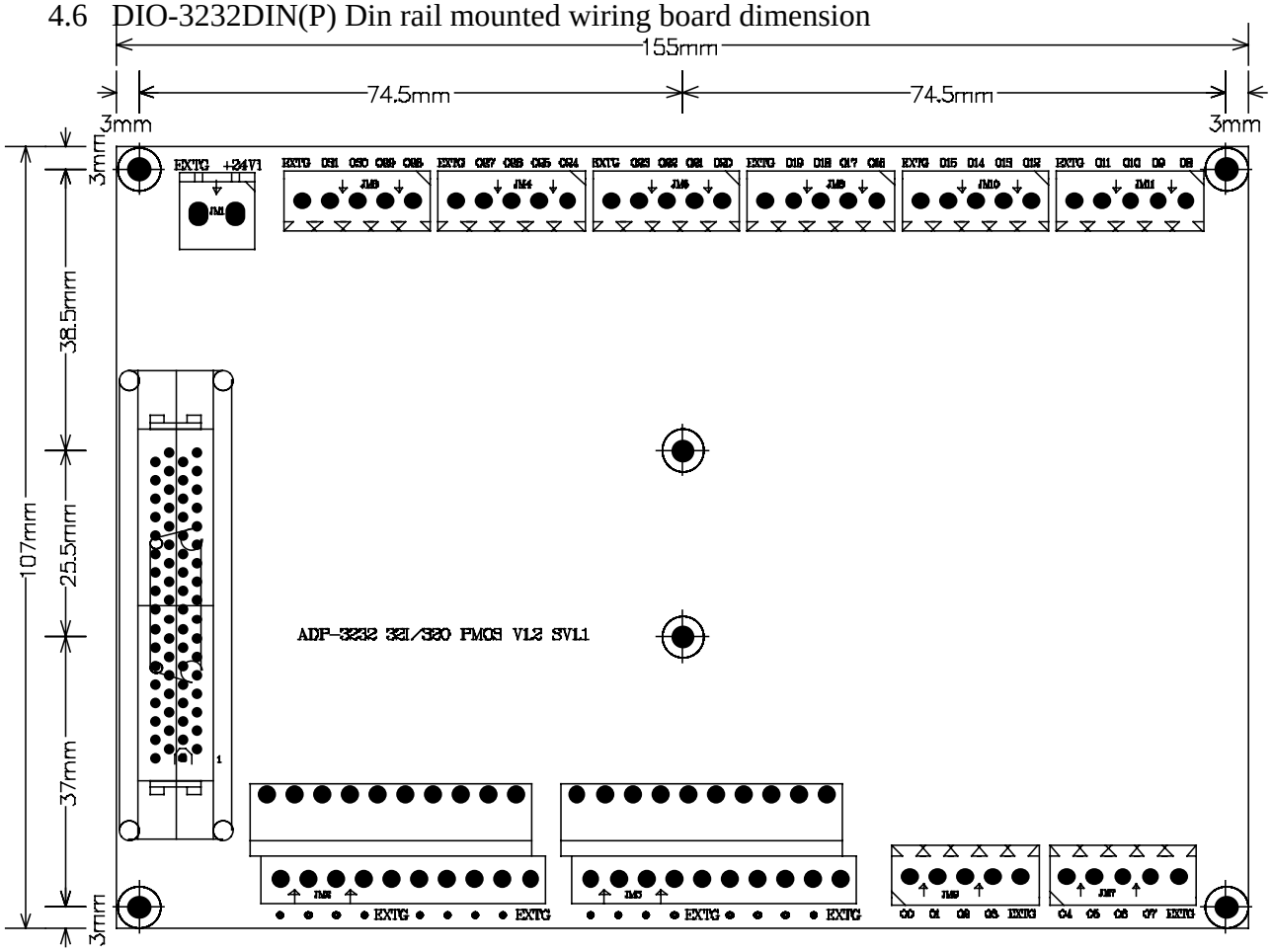
4.4 DIO-3232DIN(N) Din rail mounted wiring board dimension



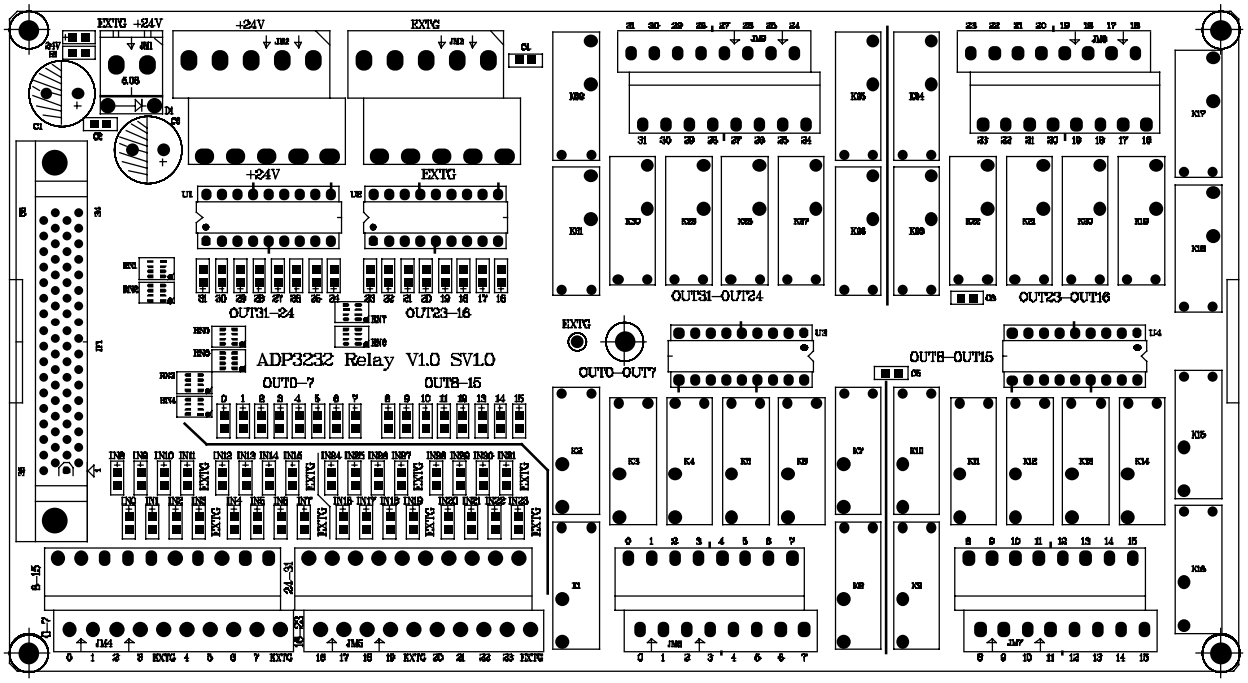
4.5 DIO-3232DIN(P) Din rail mounted wiring board layout



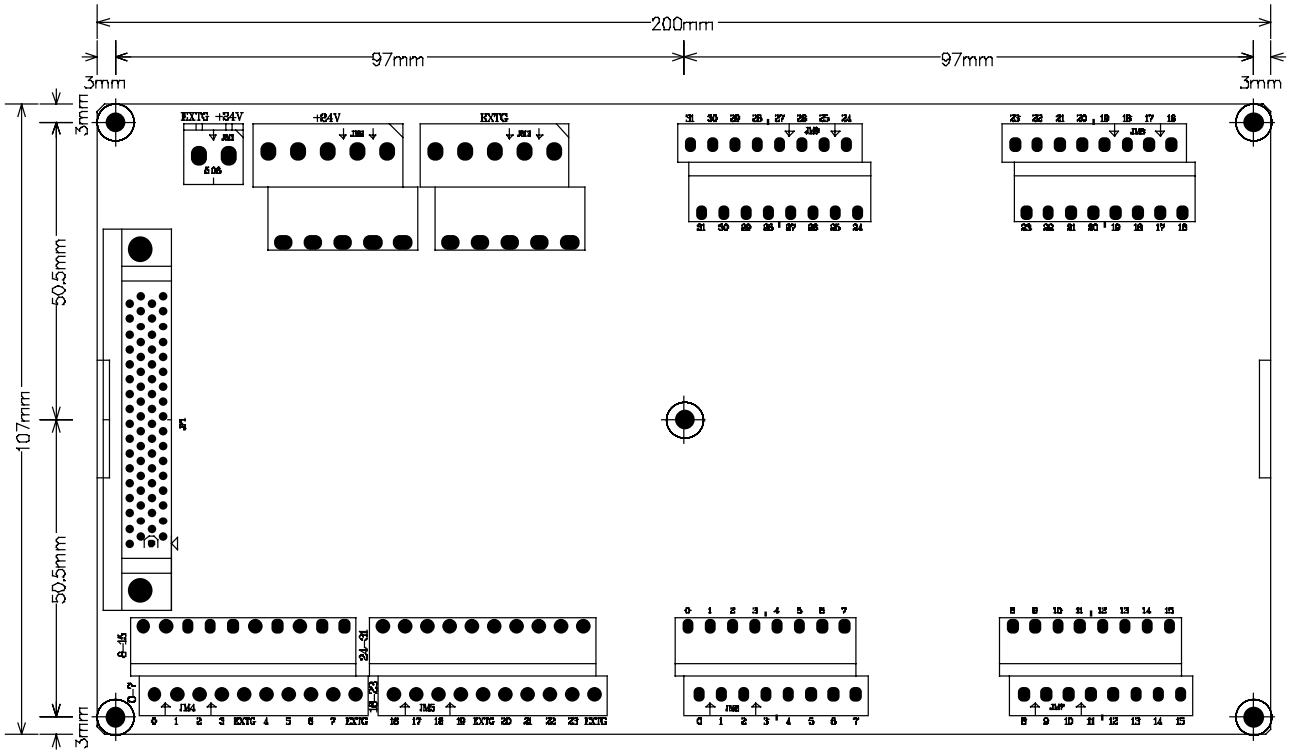
4.6 DIO-3232DIN(P) Din rail mounted wiring board dimension



4.7 DIO-3232DIN(R) Din rail mounted wiring board layout

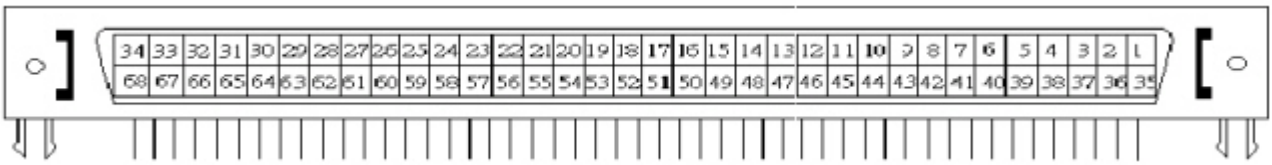


4.8 DIO-3232DIN(R) Din rail mounted wiring board dimension



5. Pin definitions

5.1 Front view of connector

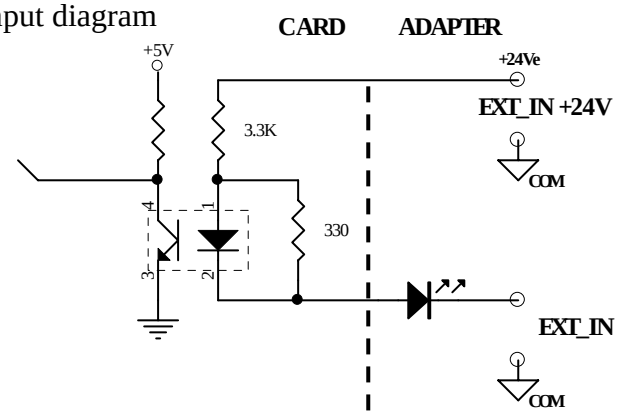


5.2 Pin definitions

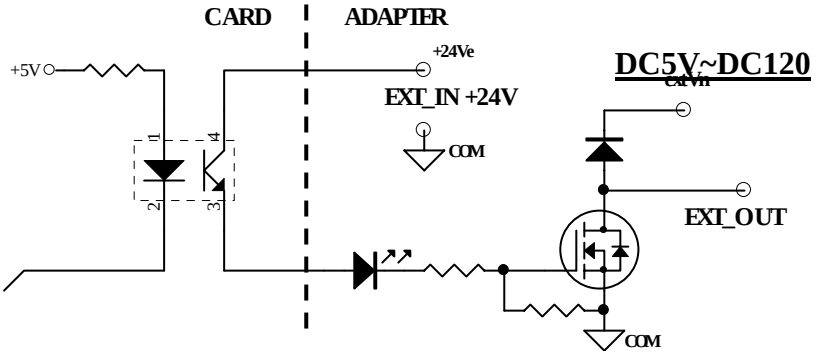
PIN	Descriptions		PIN	Descriptions
1	IN0 [External Input 0]		35	IN1 [External Input 1]
2	IN2 [External Input 2]		36	IN3 [External Input 3]
3	IN4 [External Input 4]		37	IN5 [External Input 5]
4	IN6 [External Input 6]		38	IN7 [External Input 7]
5	IN8 [External Input 8]		39	IN9 [External Input 9]
6	IN10 [External Input 10]		40	IN11 [External Input 11]
7	IN12 [External Input 12]		41	IN13 [External Input 13]
8	IN14 [External Input 14]		42	IN15 [External Input 15]
9	IN16 [External Input 16]		43	IN17 [External Input 17]
10	IN18 [External Input 18]		44	IN19 [External Input 19]
11	IN20 [External Input 20]		45	IN21 [External Input 21]
12	IN22 [External Input 22]		46	IN23 [External Input 23]
13	IN24 [External Input 24]		47	IN25 [External Input 25]
14	IN26 [External Input 26]		48	IN27 [External Input 27]
15	IN28 [External Input 28]		49	IN29 [External Input 29]
16	IN30 [External Input 30]		50	IN31 [External Input 31]
17	OUT0 [External Output 0]		51	OUT1 [External Output 1]
18	OUT2 [External Output 2]		52	OUT3 [External Output 3]
19	OUT4 [External Output 4]		53	OUT5 [External Output 5]
20	OUT6 [External Output 6]		54	OUT7 [External Output 7]
21	OUT8 [External Output 8]		55	OUT9 [External Output 9]
22	OUT10 [External Output 10]		56	OUT11 [External Output 11]
23	OUT12 [External Output 12]		57	OUT13 [External Output 13]
24	OUT14 [External Output 14]		58	OUT15 [External Output 15]
25	OUT16 [External Output 16]		59	OUT17 [External Output 17]
26	OUT18 [External Output 18]		60	OUT19 [External Output 19]
27	OUT20 [External Output 20]		61	OUT21 [External Output 21]
28	OUT22 [External Output 22]		62	OUT23 [External Output 23]
29	OUT24 [External Output 24]		63	OUT25 [External Output 25]
30	OUT26 [External Output 26]		64	OUT27 [External Output 27]
31	OUT28 [External Output 28]		65	OUT29 [External Output 29]
32	OUT30 [External Output 30]		66	OUT31 [External Output 31]
33	+24V [External DC24V power]		67	+24V [External DC24V power]
34	+24V [External DC24V power]		68	+24V [External DC24V power]

6. I/O interface diagram

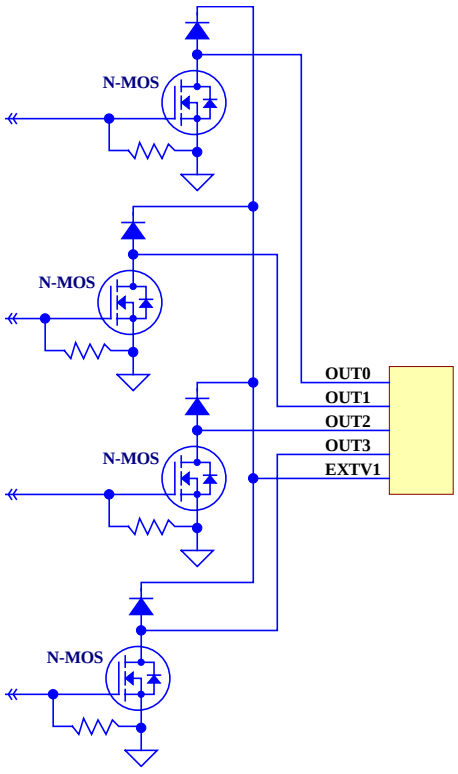
6.1 Input diagram



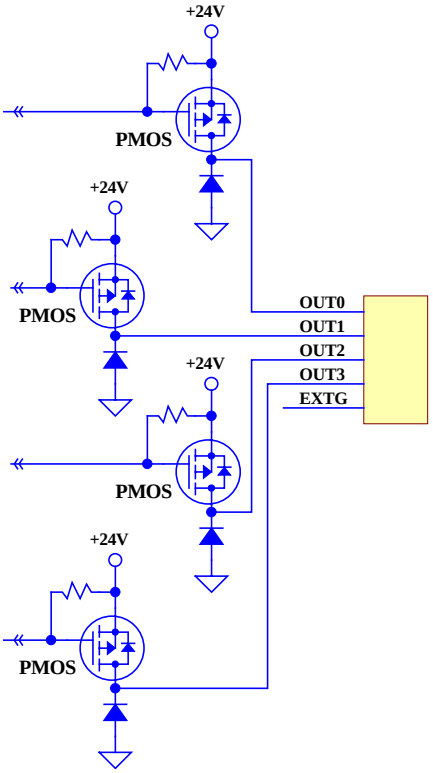
6.2 Output diagram



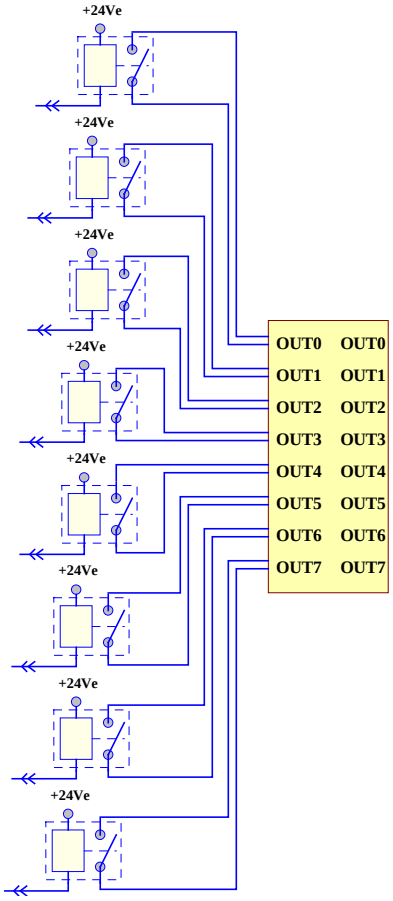
6.3 Wiring board output diagram (N MOS)



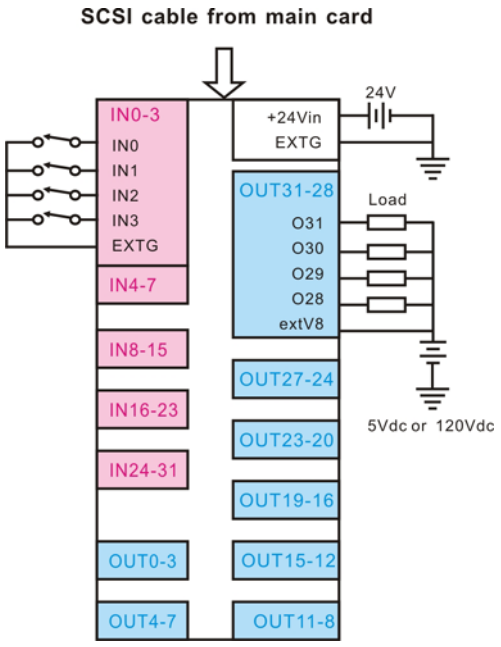
6.4 Wiring board output diagram (P MOS)



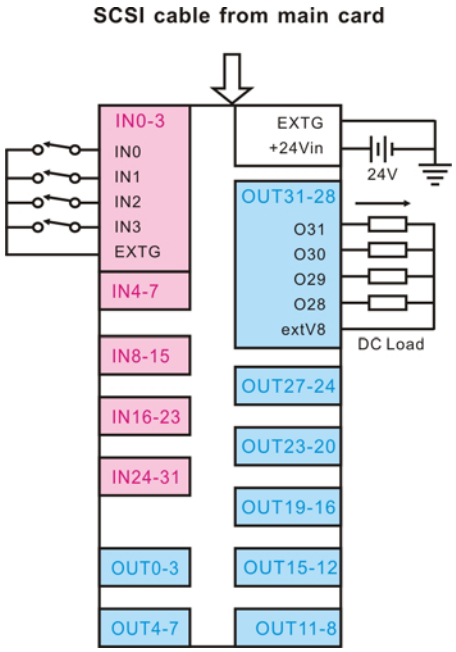
6.5 Wiring board output diagram (RELAY)



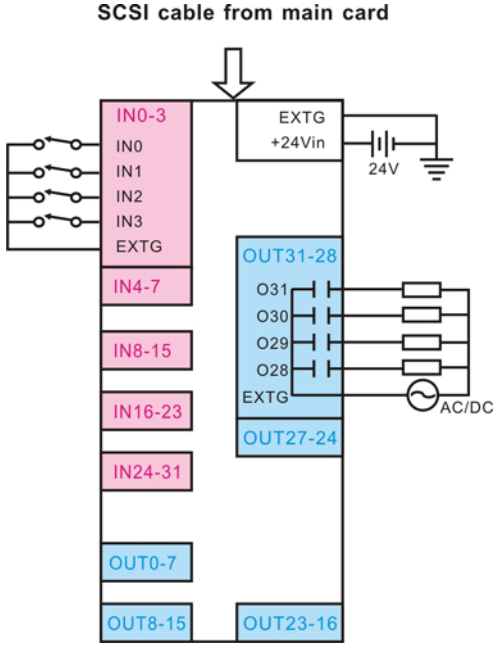
7. External wiring diagram



wiring board with NMOS output



wiring board with PMOS output



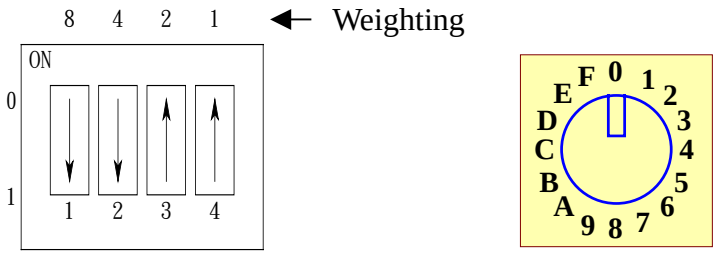
wiring board with Relay output

8. Hardware settings

8.1 Card ID setting

Since PCI cards have plug and play function, the card ID is required for programmer to identify which card he/she will control without knowing the physical address assigned by the Windows. A 4 bits DIP switch or rotary switch for distinguishing the 16 identical card. The following example sets the card ID at 12.

DIP SW SETTING：(ID=12)



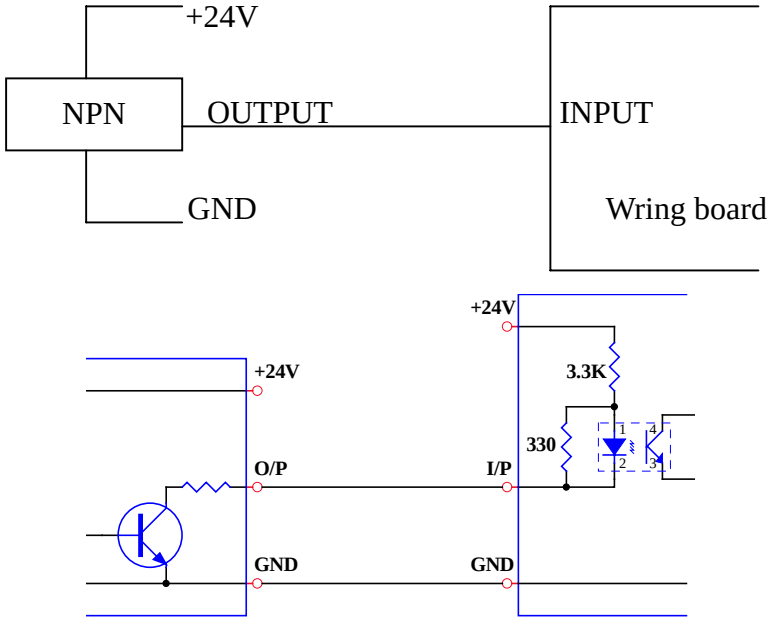
9. Applications

- Accept：-- P.B./M.S./EMG./Contact- Start/Stop/Limit switch/sensor
  -- Interlock/selective Sw.- Proximity switch
  -- Aux. contact of transducer/detector
- As I/O of S/W PLC Controller
  Power MOS type output: drive high speed DC load

10. Application note

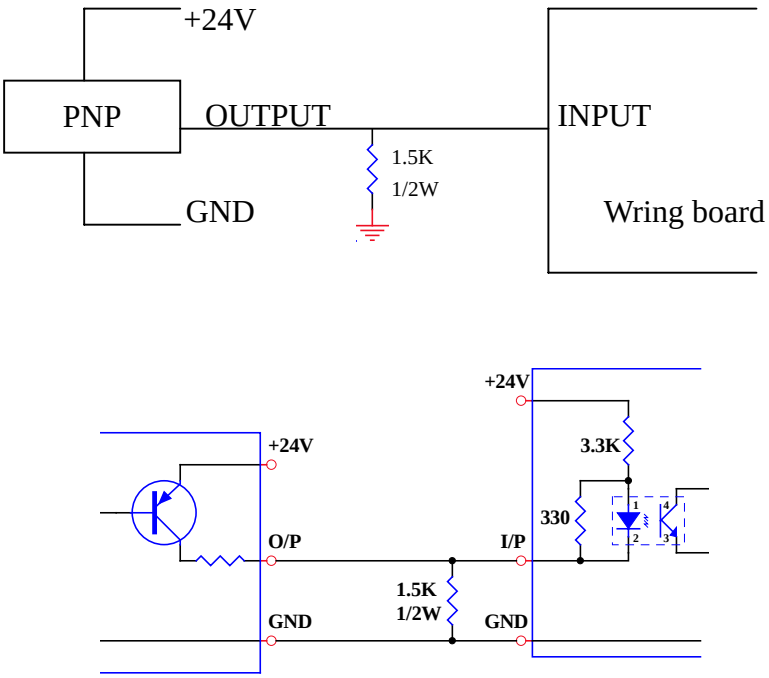
10.1 Tip for using NPN type proximity S/W：

The NPN type proximity sensor can directly connect to input of wring board.



10.2 Tip for using PNP type proximity S/W：

The PNP type proximity sensor need extra pull down resister connect to input of wring board.



11. Ordering information

PRODUCT	DESCRIPTIONS
DIO-3232	64-channel Digital I/O Card for 32 DI and 32 D0 Photo-coupler isolated
DIO-3232 DIN(N)	DIN rail mounted wiring board for 32 input and 32 power N-MOS output
DIO-3232 DIN(P)	DIN rail mounted wiring board for 32 input and 32 power P-MOS output
DIO-3232 DIN(R)	DIN rail mounted wiring board for 32 input and 32 power RELAY output
M266868150	68 pin SCSI II cable 1.5M
M266868300	68 pin SCSI II cable 3.0M